

# ***Lava Beds National Monument***

## **Klamath Basin Birding Trail Education Kit Curriculum Standards- California**

The following curriculum standards for California are covered in this activity binder. Each activity states which curriculum standards it relates to at the beginning of the activity.

### **Unit 1 – What is a Bird?**

#### **Activity 1- What Makes a Bird a Bird?**

California Science Standards

Grade 5: 6.g.-I&E

6. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
  - g. Record data by using appropriate graphic representations (including charts, graphs, and labeled diagrams) and make inferences based on those data.

Grade 6: 7.b.-I&E

7. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
  - b. Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data

Grade 7: 7.a.-I&E

7. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:

- a. Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data.

## **Activity 2- Bird Olympics**

California Science Standards

Grade 1: 2.a.b.c.-L.S.

2. Plants and animals meet their needs in different ways. As a basis for understanding this concept:
  - a. Students know different plants and animals inhabit different kinds of environments and have external features that help them thrive in different kinds of places.
  - b. Students know both plants and animals need water, animals need food, and plants need light.
  - c. Students know animals eat plants or other animals for food and may also use plants or even other animals for shelter and nesting.

Grade 2: 2.c.-L.S.

2. Plants and animals have predictable life cycles. As a basis for understanding this concept:
  - c. Students know many characteristics of an organism are inherited from the parents. Some characteristics are caused or influenced by the environment.

Grade 3: 3.b.-L.S.

3. Adaptations in physical structure or behavior may improve an organism's chance for survival. As a basis for understanding this concept:
  - b. Students know examples of diverse life forms in different environments, such as oceans, deserts, tundra, forests, grasslands, and wetlands.

Grade 4: 3.b.-L.S.

2. Living organisms depend on one another and on their environment for survival. As a basis for understanding this concept:
  - b. Students know that in any particular environment, some kinds of plants and animals survive well, some survive less well, and some cannot survive at all.

Grade 7: 3.a.-L.S.

1. Biological evolution accounts for the diversity of species developed through gradual processes over many generations. As a basis for understanding this concept:

- a. Students know both genetic variation and environmental factors are causes of evolution and diversity of organisms.

### **Activity 3- Migration Obstacle Course**

California Science Standards  
Grade K: 2.a.-L.S.

- 2. Different types of plants and animals inhabit the earth. As a basis for understanding this concept:
  - a. Students know how to observe and describe similarities and differences in the appearance and behavior of plants and animals (e.g., seed-bearing plants, birds, fish, insects).

Grade 1: 2.a.b.-L.S.

- 2. Plants and animals meet their needs in different ways. As a basis for understanding this concept:
  - a. Students know different plants and animals inhabit different kinds of environments and have external features that help them thrive in different kinds of places.
  - b. Students know both plants and animals need water, animals need food, and plants need light.

Grade 2: 2.b.-L.S.

- 2. Plants and animals have predictable life cycles. As a basis for understanding this concept:
  - b. Students know the sequential stages of life cycles are different for different animals, such as butterflies, frogs, and mice.

Grade 3: 2.a.c.d.-L.S.

- 1. Light has a source and travels in a direction. As a basis for understanding this concept:
  - a. Students know sunlight can be blocked to create shadows.
  - c. Students know the color of light striking an object affects the way the object is seen.
  - d. Students know an object is seen when light traveling from the object enters the eye.

## **Activity 4- Lava Beds National Monument Habitats**

California Science Standards

Grade 3: 3.b.c.d.-L.S.

3. Adaptations in physical structure or behavior may improve an organism's chance for survival. As a basis for understanding this concept:
  - b. Students know examples of diverse life forms in different environments, such as oceans, deserts, tundra, forests, grasslands, and wetlands.
  - c. Students know living things cause changes in the environment in which they live: some of these changes are detrimental to the organism or other organisms, and some are beneficial.
  - d. Students know when the environment changes, some plants and animals survive and reproduce; others die or move to new locations.

Grade 4: 3.b.-L.S.

3. Living organisms depend on one another and on their environment for survival. As a basis for understanding this concept:
  - b. Students know that in any particular environment, some kinds of plants and animals survive well, some survive less well, and some cannot survive at all.

Grade 7: 7.c.-I&E

7. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
  - c. Communicate the logical connection among hypotheses, science concepts, tests conducted, data collected, and conclusions drawn from the scientific evidence.

## **Activity 5- Petroglyph Point and Owls**

California Science Standards

Grade 5: 6a.g.-L.S.

6. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
  - a. Classify objects (e.g., rocks, plants, leaves) in accordance with appropriate criteria.

- g. Record data by using appropriate graphic representations (including charts, graphs, and labeled diagrams) and make inferences based on those data.

## **Unit 2 – Birding and Studying Birds**

### **Activity 1- Binoculars Bonanza!**

California Science Standards

Grade 6: 7.b.-I&E

- 7. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
  - b. Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data.

Grade 7: 7.a.d.-I&E

- 7. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
  - a. Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data.
  - d. Construct scale models, maps, and appropriately labeled diagrams to communicate scientific knowledge (e.g., motion of Earth's plates and cell structure).

### **Activity 2- Bird ID Experts**

California Science Standards

Grade 1: 4.a.-I &E

- 4. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
  - a. Draw pictures that portray some features of the thing being described.

Grade 2: 4.c.-I&E

4. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
  - c. Compare and sort common objects according to two or more physical attributes (e. g., color, shape, texture, size, weight).

Grade 3: 3.b.-L.S.

3. Adaptations in physical structure or behavior may improve an organism's chance for survival. As a basis for understanding this concept:
  - b. Students know examples of diverse life forms in different environments, such as oceans, deserts, tundra, forests, grasslands, and wetlands.

### **Activity 3- Using Bird Field Guides**

California Science Standards

Grade 6: 7.b.-I&E

7. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
  - b. Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data.

Grade 7: 7.a.c.-I&E

7. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
  - a. Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data.
  - c. Communicate the logical connection among hypotheses, science concepts, tests conducted, data collected, and conclusions drawn from the scientific evidence.

## **Activity 4- Using Plant Field Guides**

California Science Standards

Grade 6: 7.b.-I&E

7. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
  - b. Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data.

Grade 7: 7.a.c.-I&E

7. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
  - a. Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data.
  - c. Communicate the logical connection among hypotheses, science concepts, tests conducted, data collected, and conclusions drawn from the scientific evidence.

## **Activity 5- Birding By Ear**

California Science Standards

Grade 3: 3.a.-L.S.

3. Adaptations in physical structure or behavior may improve an organism's chance for survival. As a basis for understanding this concept:
  - a. Students know plants and animals have structures that serve different functions in growth, survival, and reproduction.

Grade 5: 6.a.-I&E

6. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the

other three strands, students should develop their own questions and perform investigations. Students will:

- a. Classify objects (e.g., rocks, plants, leaves) in accordance with appropriate criteria.

#### Grade 6: 7.b.-I&E

7. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:

- b. Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data.

#### Grade 7: 7.a.-I&E

7. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:

- a. Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data.

#### High School: 3S.2

### **Activity 6- Counting Birds**

#### California Content Standards

#### Grade 5: 6.c.-I&E

6. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:

- c. Plan and conduct a simple investigation based on a student-developed question and write instructions others can follow to carry out the procedure.

#### Grade 6: 7a.b.-I&E

7. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the

other three strands, students should develop their own questions and perform investigations. Students will:

- a. Develop a hypothesis.
- b. Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data.

#### Grade 7: 7.a.c.-I&E

7. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:

- a. Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data.
- c. Communicate the logical connection among hypotheses, science concepts, tests conducted, data collected, and conclusions drawn from the scientific evidence.

#### Grade 8: 9.a.e.-I&E

9. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:

- a. Plan and conduct a scientific investigation to test a hypothesis.
- e. Construct appropriate graphs from data and develop quantitative statements about the relationships between variables.

### **Activity 7- Raptors Along the Road**

California Science Standards

Grade 3: 2.a.-L.S

2. Light has a source and travels in a direction. As a basis for understanding this concept:
  - a. Students know sunlight can be blocked to create shadows.

Grade 4: 3.b.-L.S

3. Living organisms depend on one another and on their environment for survival. As a basis for understanding this concept:

- b. Students know that in any particular environment, some kinds of plants and animals survive well, some survive less well, and some cannot survive at all.

## **Activity 8- Create a Field Journal!**

California Science Standards

Grade 6: 7.b.-I&E

- 7. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
  - b. Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data.

Grade 7: 7.a.c.-I&E

- 7. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
  - a. Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data.
  - c. Communicate the logical connection among hypotheses, science concepts, tests conducted, data collected, and conclusions drawn from the scientific evidence.

## **Activity 9- Birds and Caves at Lava Beds National Monument**

California Science Standards

Grade 3: 3.b.c.d.-L.S.

- 3. Adaptations in physical structure or behavior may improve an organism's chance for survival. As a basis for understanding this concept:
  - b. Students know examples of diverse life forms in different environments, such as oceans, deserts, tundra, forests, grasslands, and wetlands.
  - c. Students know living things cause changes in the environment in which they live: some of these changes are detrimental to the organism or other organisms, and some are beneficial.
  - d. Students know when the environment changes, some plants and animals survive and reproduce; others die or move to new locations.

Grade 4: 3.b.-L.S.

2. Living organisms depend on one another and on their environment for survival. As a basis for understanding this concept:
  - b. Students know that in any particular environment, some kinds of plants and animals survive well, some survive less well, and some cannot survive at all.

Grade 7: 7.c.-I&E

7. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
  - c. Communicate the logical connection among hypotheses, science concepts, tests conducted, data collected, and conclusions drawn from the scientific evidence.

## **Activity 10- Birds, Plants, and People of the Klamath Basin**

California Science Standards

Grade 4: 3.c– L.S.

3. Living organisms depend on one another and on their environment for survival. As a basis for understanding this concept:
  - c. Students know many plants depend on animals for pollination and seed dispersal, and animals depend on plants for food and shelter.

Grade 6: 5.c– L.S.

5. Organisms in ecosystems exchange energy and nutrients among themselves and with the environment. As a basis for understanding this concept:
  - c. Students know populations of organisms can be categorized by the functions they serve in an ecosystem.

## **Activity 11- Bird Banding Reveals**

California Science Standards

Grade 6: 7.b.-I&E

7. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the

other three strands, students should develop their own questions and perform investigations. Students will:

- b. Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data.

Grade 7: 7.a.b.-I&E

- 7. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
  - a. Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data.
  - b. Use a variety of print and electronic resources (including the World Wide Web) to collect information and evidence as part of a research project.

## **Unit 3 – Bird Conservation**

### **Activity 1- Citizen Science**

California Science Standards  
Grade 6: 7.b.-I&E

- 7. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
  - b. Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data.

Grade 7: 7.a.b.-I&E

- 7. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
  - a. Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data.

- b. Use a variety of print and electronic resources (including the World Wide Web) to collect information and evidence as part of a research project.

## **Activity 2- Birding Economics**

California Science Standards

Grade 6: 7.b.-I&E

- 7. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
  - b. Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data.

Grade 7: 7.a.c.-I&E

- 7. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
  - a. Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data.
  - c. Communicate the logical connection among hypotheses, science concepts, tests conducted, data collected, and conclusions drawn from the scientific evidence.

## **Activity 3- Take Action!**

California Science Standards

Grade 6: 7.b. –I&E

- 7. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
  - b. Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data.

Grade 7: 7.a.b. –I&E

7. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
  - a. Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data.
  - b. Use a variety of print and electronic resources (including the World Wide Web) to collect information and evidence as part of a research project.

### **Activity 4- Sagebrush Steppe Habitat Assessment**

California Science Standards

Grade 3: 3.b.c.d.-L.S.

3. Adaptations in physical structure or behavior may improve an organism's chance for survival. As a basis for understanding this concept:
  - b. Students know examples of diverse life forms in different environments, such as oceans, deserts, tundra, forests, grasslands, and wetlands.
  - c. Students know living things cause changes in the environment in which they live: some of these changes are detrimental to the organism or other organisms, and some are beneficial.
  - d. Students know when the environment changes, some plants and animals survive and reproduce; others die or move to new locations.

Grade 4: 3.b.-L.S.

2. Living organisms depend on one another and on their environment for survival. As a basis for understanding this concept:
  - b. Students know that in any particular environment, some kinds of plants and animals survive well, some survive less well, and some cannot survive at all.

Grade 7: 7.c.-I&E

7. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:

- c. Communicate the logical connection among hypotheses, science concepts, tests conducted, data collected, and conclusions drawn from the scientific evidence.

## **Activity 5- Fire at Lava Beds National Monument**

California Science Standards

Grade 3: 3.b.c.d.-L.S.

- 3. Adaptations in physical structure or behavior may improve an organism's chance for survival. As a basis for understanding this concept:
  - b. Students know examples of diverse life forms in different environments, such as oceans, deserts, tundra, forests, grasslands, and wetlands.
  - c. Students know living things cause changes in the environment in which they live: some of these changes are detrimental to the organism or other organisms, and some are beneficial.
  - d. Students know when the environment changes, some plants and animals survive and reproduce; others die or move to new locations.

Grade 4: 3.b. - L.S.

- 2. Living organisms depend on one another and on their environment for survival. As a basis for understanding this concept:
  - b. Students know that in any particular environment, some kinds of plants and animals survive well, some survive less well, and some cannot survive at all.

Grade 7: 7.c. - I&E

- 7. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
  - c. Communicate the logical connection among hypotheses, science concepts, tests conducted, data collected, and conclusions drawn from the scientific evidence.